

Remarks/Arguments

Amendments to Claim 2

Claim 2 was amended to recite: “wherein the respective first planar surfaces lie on a second ring plane and the respective second planar surfaces lie on a third ring plane, different than the second ring plane, wherein the center section is at least partially disposed between the second and third planes and extends from between the second and third planes to beyond the second and third planes,” These limitations are shown in Figure 2. For example, the “top” surfaces of the wings extending from the center portion are clearly co-planar. In like fashion, the “bottom” surfaces of the wings are co-planar with respect to a different ring plane. Also, the center portion is partially located between the planes defined by the top and bottom surfaces and extends beyond the planes. Therefore, no new matter has been added.

The Rejection of Claims 2-5, 7-9, 11-13, and 15 Under 35 U.S.C. §103(a)

The Examiner rejected Claims 2-5, 7-9, 11-13, and 15 under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 3,531,133 (Sheesley) in view of United States Patent No. 2,580,546 (Hobson). Applicants traverse the rejection as follows.

Sheesley does not disclose a base ring with a core shaped as recited in Claim 2

Amended Claim 2 recites: “...wherein the respective first planar surfaces lie on a second ring plane and the respective second planar surfaces lie on a third ring plane, different than the second ring plane, wherein the center section is at least partially disposed between the second and third planes and extends from between the second and third planes to beyond the second and third planes...” In the Response to Arguments, the Examiner asserts that the valleys or grooves in Sheesley’s seal could be construed as center portions. Applicants note that the valleys or grooves are clearly not centered with respect to the seal, and therefore, defining the valleys or grooves as being centered would be repugnant to the normal meaning of the word. However, assuming *arguendo* that the valleys or grooves could be considered as center portions, Sheesley fails to teach, suggest, or motivate the structure recited in Claim 2 as follows.

Claim 2 recites first and second wings with respective first and second planar surfaces extending directly from the center section. None of the seals taught by Sheesley has more than one portion with planar surfaces extending from a same valley or groove. For example, in Figure 11, the left-most valley has a segment extending to the left that may have planar surfaces, however, to the right, the valley is contiguous with an arcuate portion of the seal.

Claim 2 recites the center portion extending beyond the planes defined by the respective first and second planar surfaces. In contrast, the valleys or grooves in Sheesley are between the planes, but never extend beyond the planes. The portions of Sheesley's seal that do extend beyond the planes do not have wings with planar surface extending directly from the portions.

Hobson does not disclose a base ring with a core shaped as recited in Claim 2

Hobson teaches only rectangular cores, a core with multiple circular cross-sections (Figure 9), or a core with a "wavy" cross-section (Figure 8). None of these shapes are similar to the core shape recited in Claim 2. Nor does Hobson suggest or motivate the core shape recited in Claim 2.

Hobson does not teach, suggest, or motivate covering Sheesley's gasket

In the RCE of January 18, 2006, Applicants provided arguments as to why Hobson does not motivate covering Sheesley's gasket material, why Sheesley teaches against covering a gasket material, and how the Examiner applied impermissible hindsight. For the sake of brevity, these arguments are reaffirmed, but not repeated.

Advantages of the invention recited in Claim 2

The sealing ring recited in Claim 2 has significant advantages over prior art sealing rings because the absence of grooves in the seal enables the surfaces of the wings and center section to come into continuous, conformal contact with the flange planar surfaces when the center portion is axially compressed. That is, the surface area of the sealing ring in continuous contact with the flange to be sealed is significantly greater according to the present invention. Thus, a tighter contact and a better seal are achieved between the seal and flange surfaces. This effect is clearly illustrated by Figure 4 of the present application, in which the sealing ring is depicted before (dashed lines) and after (continuous lines) the center portion of the seal is compressed.

In contrast, none of Figures 2-6 of Sheesley show the continuous, conformal contact between the seal and flange characteristic of the present invention. That is, there are clear gaps in the contact areas. This is due to the presence of valleys or grooves, as well as projecting parts, in the deformable portion of Sheesley's seal.

Sheesley and Hobson fail to teach, suggest, or motivate all the elements of Claim 2. Therefore, Claim 2 is patentable over Sheesley and Hobson. Claims 3-5, 7-9, 11-13, and 15, dependent from Claim 2, enjoy the same distinction with respect to the cited references. Applicants courteously request that the rejection be removed.

The Rejection of Claims 2-5, 7-9, 11-13, and 15 Under 35 U.S.C. §103(a)

The Examiner rejected Claims 2-5, 7-9, 11-13, and 15 under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 3,195,906 (Moyers) in view of United States Patent No. 2,580,546 (Hobson). Applicants traverse the rejection as follows.

Moyers does not disclose a base ring with a core shaped as recited in Claim 2

Like Sheesley, Moyers fails to teach, suggest, or motivate the novel cross-section recited in amended Claim 2. For example, in Fig. 3, Moyers shows sections with planar surfaces, but there is no central section from which the planar surfaces directly extend. For example, rib 38 is separated from planar surfaces by a groove. In Fig. 6, Moyers shows a groove adjacent to planar surfaces, but the groove does not extend beyond the planes defined by the planar surfaces.

Hobson does not teach, suggest, or motivate covering Moyers' gasket

In the RCE of January 18, 2006, Applicants provided arguments as to why Hobson does not motivate covering gasket material and how the Examiner applied impermissible hindsight. These arguments are applicable to Moyers and for the sake of brevity, are not repeated.

Advantages of the invention recited in Claim 2

As noted above, the sealing ring recited in Claim 2 has significant advantages over prior art sealing rings. Like Sheesley, the surfaces of the deformable portion of Moyers' sealing ring do not come into continuous, conformal contact with the corresponding surfaces of the flanges because of the grooves in the base ring as shown in Figure 3 (40, 41); Figure 6 (50,51); and

Figure 7 (64). Also see col. 3, lines 4-7; col. 3, lines 61-65; and col. 3, lines 72-75, respectively. The grooves remain in the base ring even when the sealing ring is engaged between surfaces to be sealed, thereby causing an interruption of the area of contact between the surfaces as seen in Figure 4. Therefore, compared to the sealing ring recited in Claim 2, Moyers' sealing ring provides an undesirably looser contact between seal and flange surfaces due to the breaks in contact between the seal and flange caused by the grooves.

Moyers teaches against the cross-section recited in Claim 2

Claim 2 recites a center portion extending beyond the ring planes defined by the respective planar surfaces. In direct contrast, the grooves in the base ring, which do not extend beyond the ring planes, are a critical and necessary feature of Moyers' ring, since these grooves are needed to receive material from the deformed portion of the base ring. This element of Moyers' ring is recited in Claim 1 (col. 4, lines 29-30), Claim 2 (col. 4, lines 50-52) and Claim 3 (col. 4, lines 67-70). "A *prima facie* case of obviousness can be rebutted if one of the cited references teaches away from the claimed invention. See *In re Geisler*, 43 U.S.P.Q. 2d 1362, 1366 (Fed. Cir. 1997)."

Moyers and Hobson fail to teach, suggest, or motivate all the elements of Claim 2. Therefore, Claim 2 is patentable over Moyers and Hobson. Claims 3-5, 7-9, 11-13, and 15, dependent from Claim 2, enjoy the same distinction with respect to the cited references. Applicants courteously request that the rejection be removed.

The Objection of Claims 17, 19, and 20 as Being Dependent Upon a Rejected Base Claim

Claims 17, 19, and 20 were objected to as being dependent upon a rejected base claim, but the Examiner indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants have shown that Claim 2 is patentable over the cited references. Therefore, Claims 17, 19, and 20, dependent from Claim 2, no longer depend from a rejected base claim. Applicants courteously request that the objection be removed.

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Conclusion

Applicant respectfully submits that the present application is now in condition for examination on the merits, which action is courteously requested. The Examiner is invited and encouraged to contact the undersigned agent of record if such contact will facilitate an efficient examination and allowance of the application.

Respectfully submitted,



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